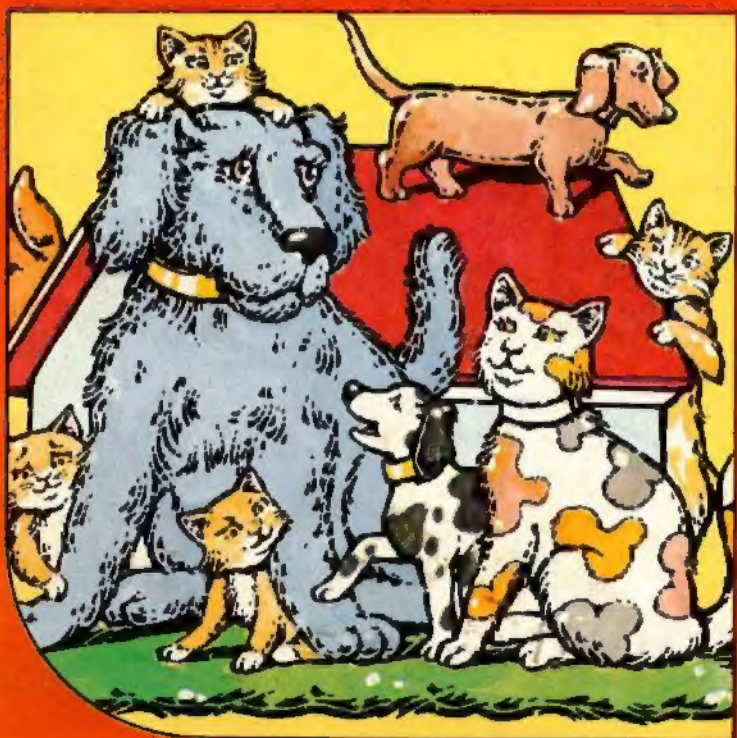


# 321 CONTACT

## Is There a Robot in Your Future?







# Hand in Hand

The big hand in this picture belongs to a five-year-old girl. The baby's hand is so tiny that it makes her hand look like an adult's.

The baby here was born too early. His life was in danger then. But he was saved by a group of special people. To find out more about how people are saving babies like him, turn to page 24.

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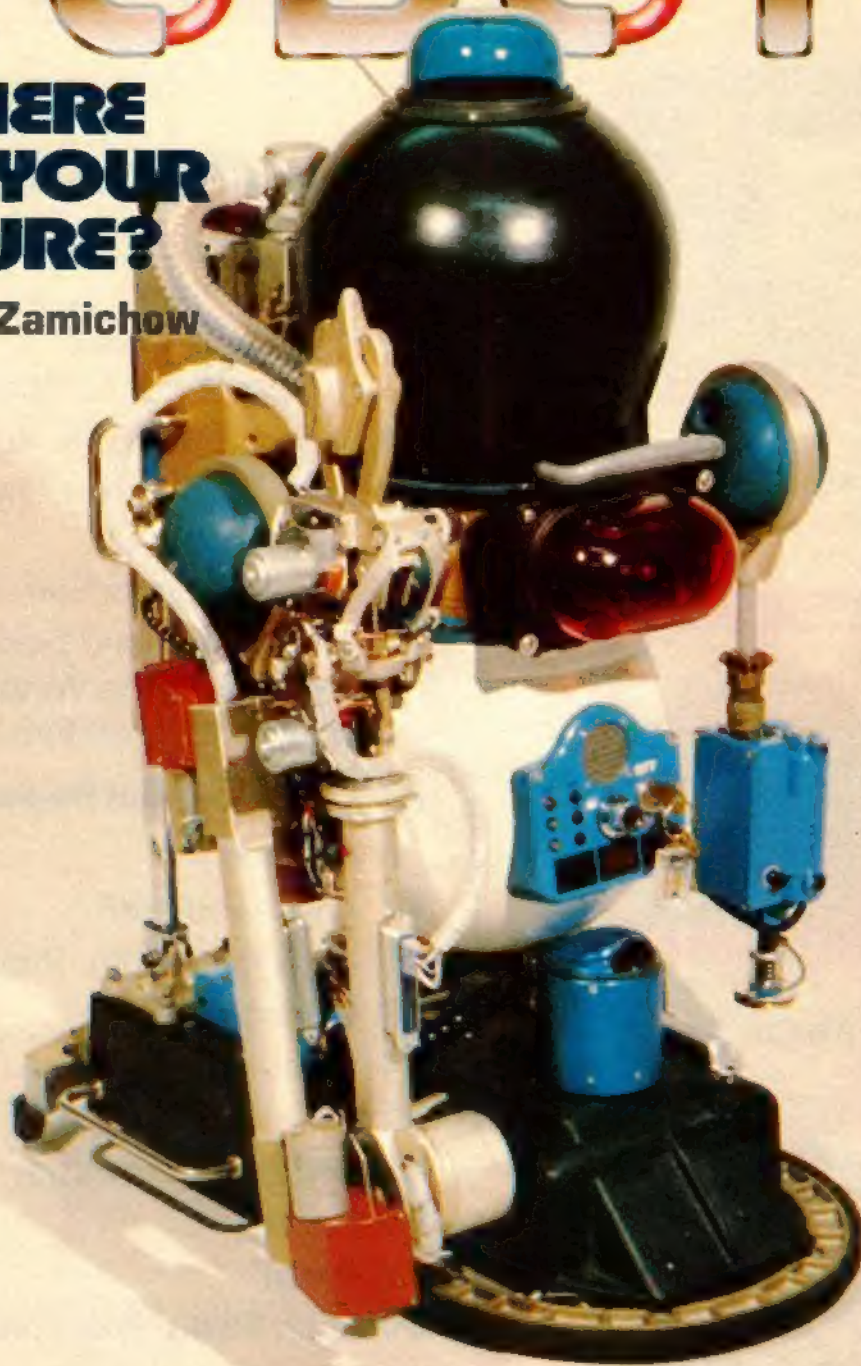
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# HOME ROBOTS

**IS THERE  
ONE IN YOUR  
FUTURE?**

by Nora Zamichow



This is Avatar, one of the first of a new type of home robots. Inventors are trying to build these robots to help people with work around the house.



Robots are wonderful little machines. You have seen them clanking along in the movies. In the real world, you haven't seen too much of them yet. But you will soon because robots are very useful to people. Robots help farmers shear sheep in Australia. In Japan, some direct highway traffic. Here in the United States, robots are being built that will explore outer space.

A robot is a machine that can be programmed over and over to do many different things. In response to the commands people give to its computer, a robot moves different parts of its body. That's how it helps people do their work.

By now, you're probably thinking, "Boy, I'd love to have a robot at home to do all my chores!" And when it finished cleaning your room, it could even play games with you. After all, robots never get tired.

You're not the only one to think that home robots would be great. In fact, robot experts are already working hard to build a good one. But they haven't succeeded yet. And it isn't easy.

### **At Home With Robots**

Chuck Balmer is one of the new robot makers. He wanted to build robots ever since he was in high school. Now, as an adult, he has built a 30-inch-tall robot named Avatar (AV-uh-tar).

It took Chuck five years to make this robot. Avatar's body came from Chuck's father's old X-

ray machine. Its base was made from a tricycle. Avatar can move forward at about 12 inches (30 cm) per second. The robot has two arms, but only one works as an arm. The other is a tube which Avatar plugs into a motorcycle battery to recharge. Chuck programmed it to recharge by itself whenever its power becomes low.

What can Avatar do? It can speak. If you visit Avatar, it would certainly wave and say hello. But your conversation would have to be short. This robot has a vocabulary of only 400 words.

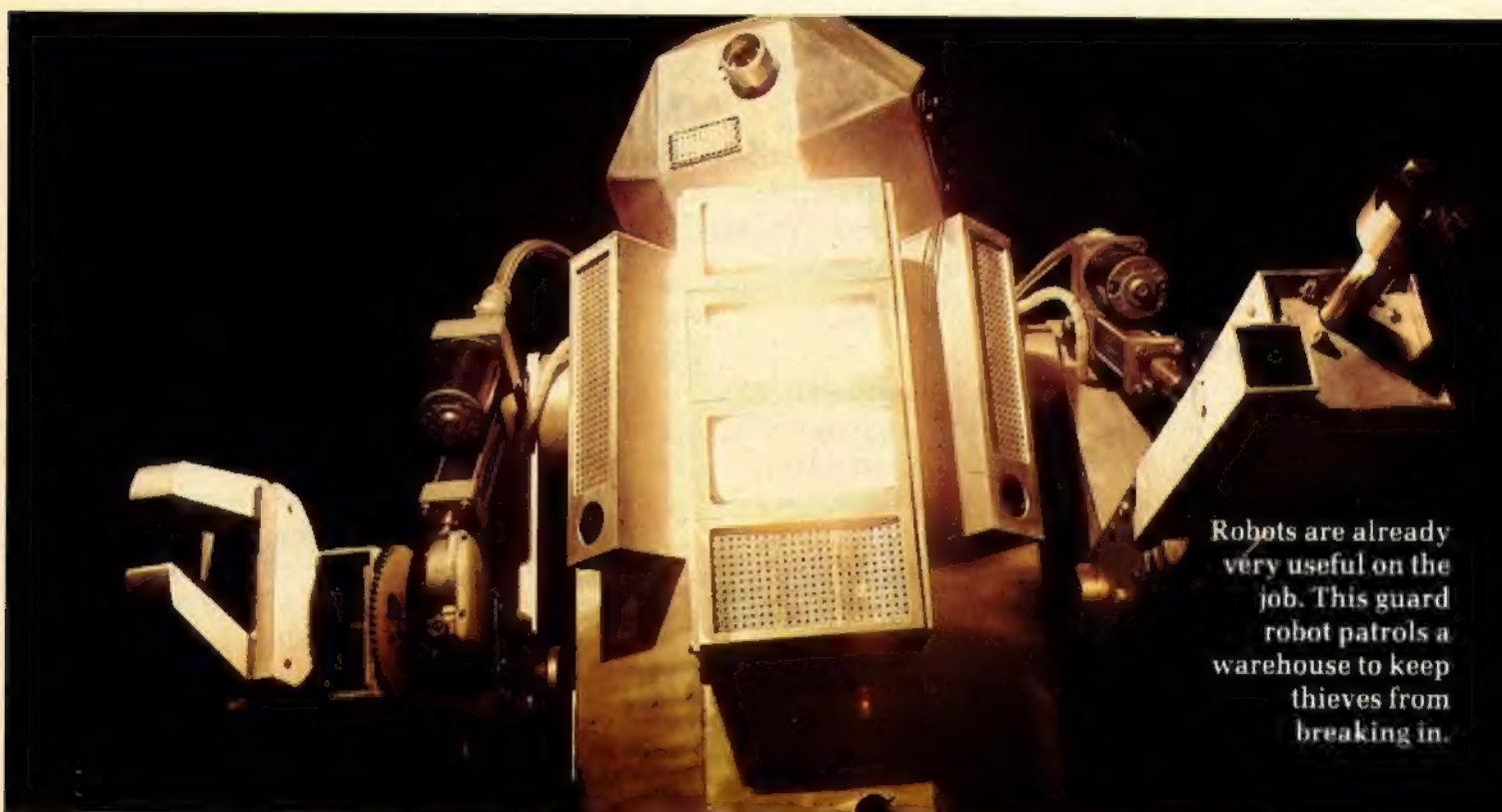
Avatar's only other skill is the ability to move around Chuck's workshop without bumping into anything.

It can't clean the room or even make a sandwich. In fact, this robot rarely leaves the inventor's workshop. Moving around the rest of Chuck's home is too hard for Avatar.

### **Homes for Robots**

It's turning out to be hard to make a useful home robot. A factory robot may simply stand in one spot drilling holes in a piece of metal. But in a home, there are many different chores to do. A good home robot should be able to vacuum, take out the trash and lots more.

One problem for robots is that everything from staircases to doorknobs is made for people. "This makes a home awkward for a robot," says Dr. Ernest Kent, a robot expert. ➡➡



Robots are already very useful on the job. This guard robot patrols a warehouse to keep thieves from breaking in.



The biggest problem is that most robots cannot see or feel what is around them. To be useful in your house, a robot must be able to do both. There are a few robots built with camera-like eyes. They can see a little. But their vision has no sense of depth. They are not able to tell whether one object is farther away than another.

### **A Touchy Subject**

For a home robot, a sense of touch is also important. If it had a hand like yours, it could hold a bottle without crushing it. Instead, today's robots have grippers that cannot feel. So researchers Danny Hillis and John Hollerbach are working to create a special skin for a robot "hand."

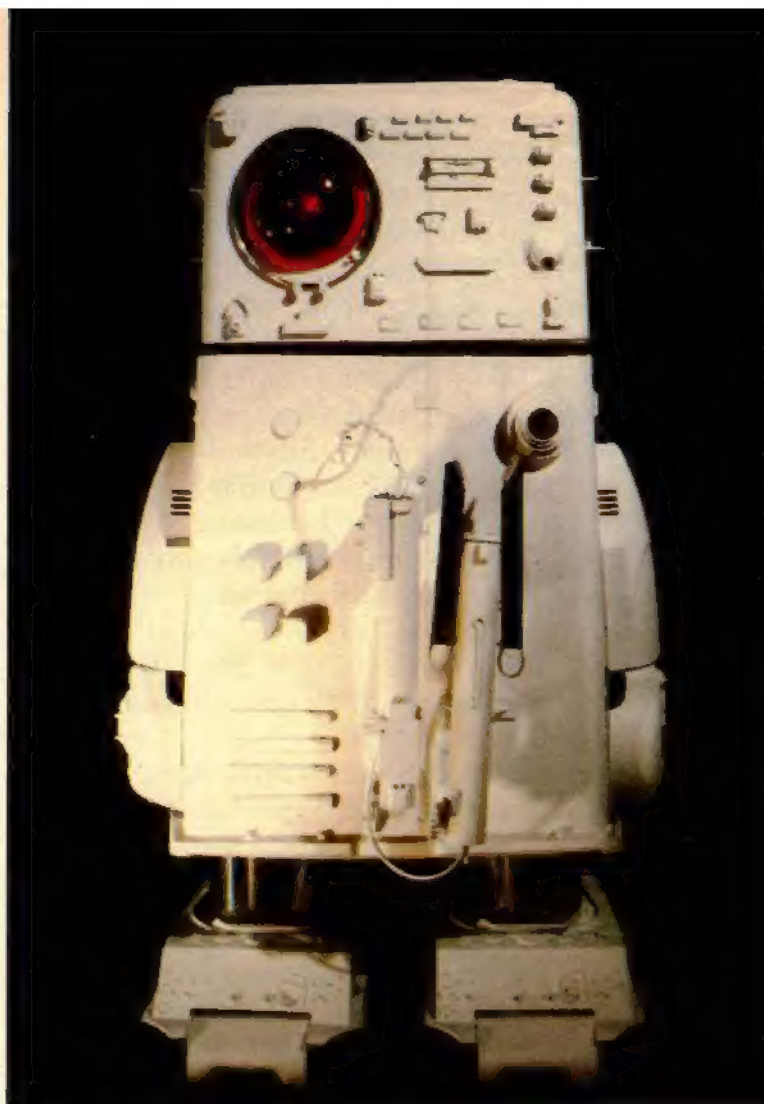
This amazing "skin" would let a robot see and feel at the same time. It's made of thin sheets of rubber that are lined with wires. The rubber is put together in layers. And the very top layer receives an electrical current from the robot. As soon as the skin touches something, the rubber sheets get pressed together. That causes the electrical wires to touch. Then the current flows through these wires.

The robot's skin is connected to a small computer which measures the electrical current. Using this information, a robot can begin to sense what it is touching. So far, the computer can only create an image of tiny objects that were touched. But in the future, when the skin touches something larger like a bottle, a robot's computer would show an image of that bottle.

Developing a robot for your home will take time. Experts disagree about how long you will have to wait. Dr. Ernest Kent believes it could take 100 years to build useful home robots. Others think it will take only 15 years. In either case, a robot pal for you is still a few years away.

### **Showbots**

Don't give up, though. There's some good news. People can buy a "showbot" right now. A showbot is a radio-controlled imitation robot. There are different kinds. But all of them can only move or speak when you radio directions to them. Showbots are often mistaken for real robots because some of them look like the robots you see in movies. But unlike real robots, showbots don't have computers. They cannot run without people telling them what to do. Robot experts call them showbots because these imitations are just for show.



**Above:** This is Comro, which looks like a robot but really isn't. Instead, it is an imitation robot called a showbot because it is made mostly for show.

**Right:** Arok is another showbot or imitation robot. It can lift heavy things and push them around, but only when Ben Skora, its inventor, tells it what to do.

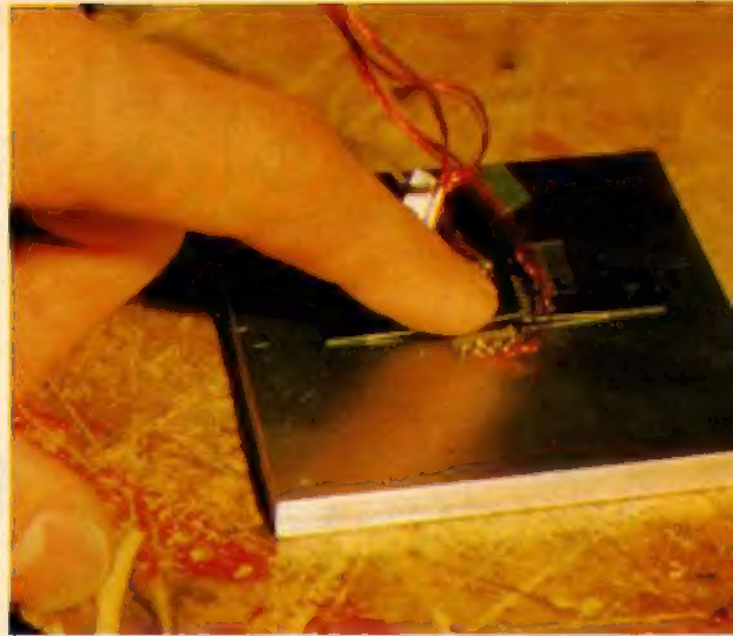
Gene Beley is one person who believes that showbots should be fun. So his company made an expensive showbot that can greet guests at parties, carry drinks and even dance to disco!

Metro Man is another showbot. It tours New York City schools to teach kids to avoid dangerous subway tracks. When Metro Man "speaks," most people don't notice that a person with a walkie-talkie is doing the actual speaking.

Other showbots, like Comro 1, come with a lot of fancy equipment. Comro 1 has a stereo to play music, a magazine rack, a television and a smoke alarm. But best of all, Comro 1 has one feature that a useful home robot should have. It comes with a vacuum cleaner. Maybe you'll get some help with cleaning your room yet!



**Right:** A good home robot will need to have sensitive "skin" so it can pick up things without crushing them. To help the robot "feel" things, there will be electric wires like these under its skin.



**Left:** This arm belongs to a factory robot. It can weld things together and help build everything from cars to refrigerators. More and more factory robots are being used in the U.S.





# Factoids



Shredded Wheat was the first ready-to-eat dry cereal. It appeared on store shelves 90 years ago, in 1893.



An average American eats 39 carrots each year.

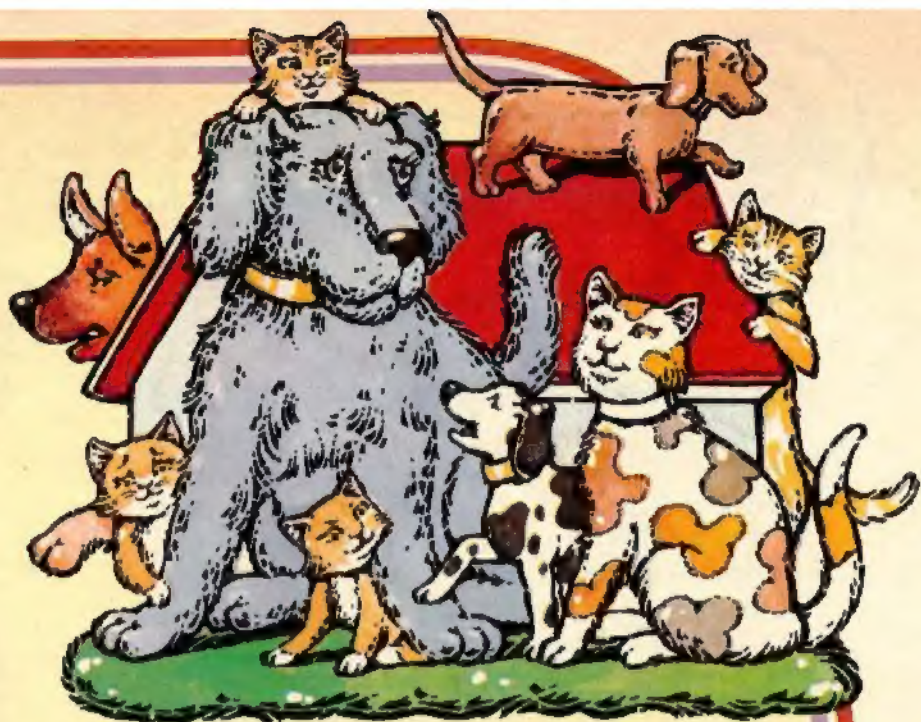


The moose is the largest member of the deer family.





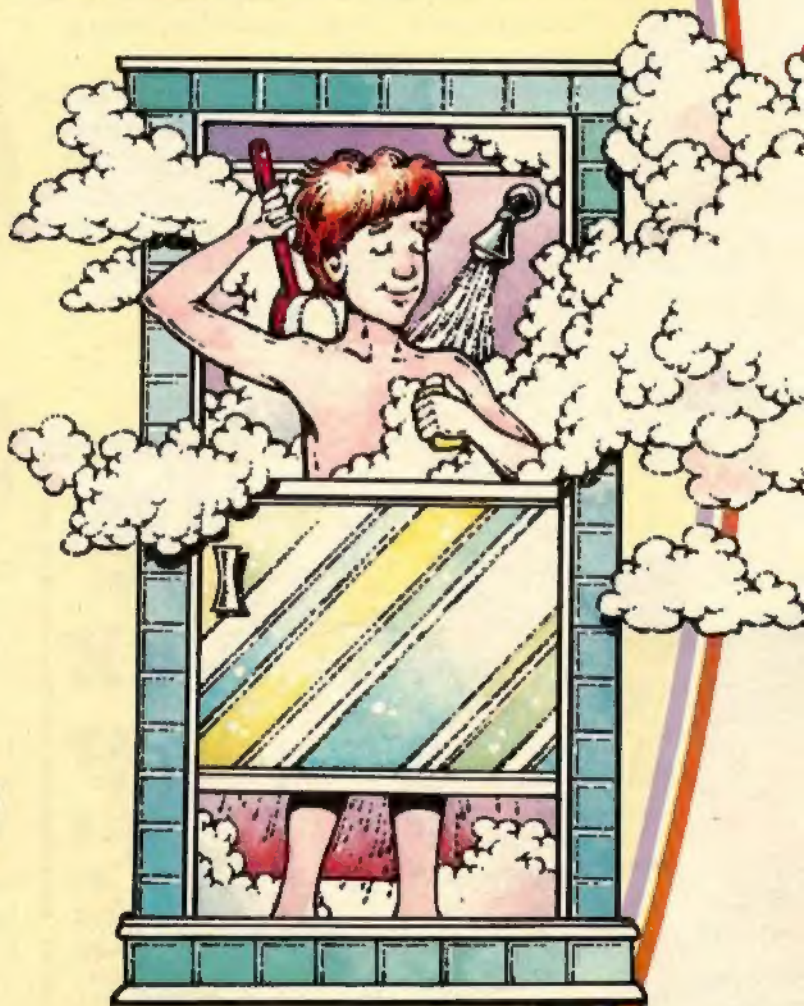
There are about 90 flashes of lightning on the earth every second.



There are more than 40 million dogs and 23 million cats living in the United States.



Cork comes from the bark of trees.



A typical 10-year-old is covered by about five pounds of skin.



# Any Questions?

by Susan Meyers

## Do horses sleep standing up?

The answer to that question is yes. In fact, horses aren't the only animals that sleep standing up. Zebras, giraffes, antelope and other herd animals do, too. By sleeping standing up, these animals can run away quickly when danger is near.

Since the answer is yes, the next question is how do horses sleep standing up? If you've ever seen a horse race, you know that a horse's legs are built for running. In a different way, a horse's legs are built for sleeping, too.

When a horse stands still, its legs lock in place. Like yours, a horse's joints are surrounded by a kind of natural brace. Tough, cord-like tissues, called ligaments, hold the joints in place.

When you stand for too long, your leg muscles get tired. But a horse's legs are made differently. When its legs lock in place, a horse doesn't have to use much muscle power. So standing and sleeping at the same time is no problem at all.

Question sent in by Jill Schapiro, Baltimore, MD.



## How do eyeglasses help people see?

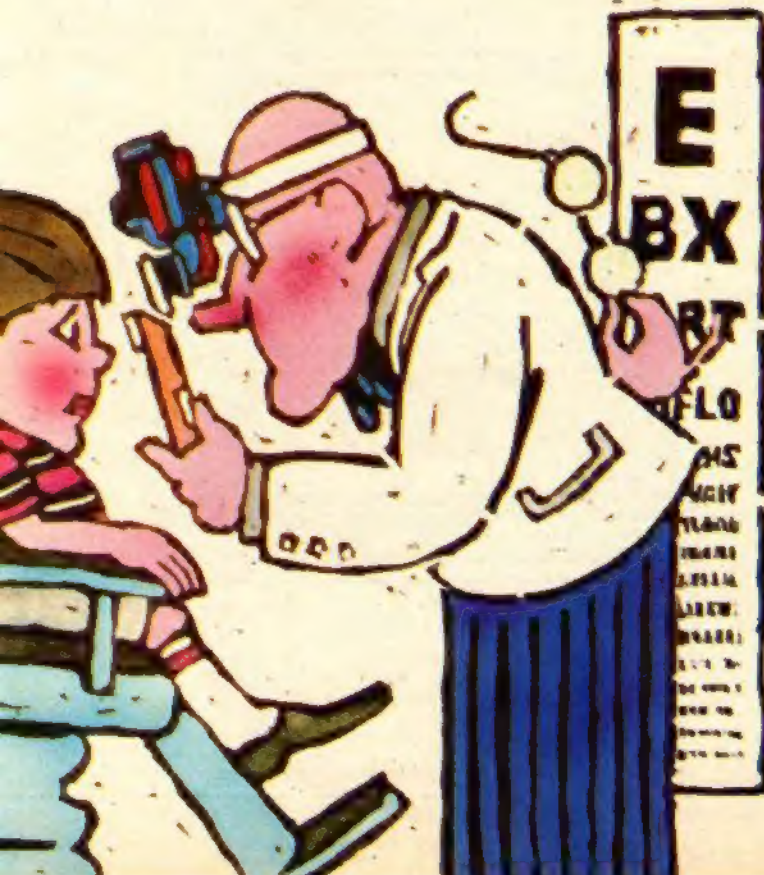
About half the people in the United States wear eyeglasses. And almost everyone, at one time or another, will have to wear them. Whether they're for reading or watching television, all eyeglasses do the same job. They sharpen the picture.

Let's say you're looking at the chalkboard in school. Light bounces off the board and into your eyes. Your eye bends the light in a certain way. The image of the chalkboard falls on the back of your eye, the retina.

But sometimes a person's eyes might not be shaped exactly right. Or the eye muscles might be weak. So after the light bends through the eye, it falls either in front of or behind the retina. Then things look blurry.

Eyeglasses bend the light before it passes through the eye. With this extra help, the picture of what's seen falls right on the retina, where it belongs. The fuzziness is gone and everything looks crystal clear.

Question sent in by Andy Sugermeyer, Virginia Beach, VA.





Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

**Any Questions?**  
**3-2-1 CONTACT**  
P.O. Box 599  
Ridgefield, NJ 07657

**How does film develop?** Take instant cameras, for example. You push a button and out pops a piece of film. Believe it or not, the film is made up of about 15 different layers. Those layers have everything the film needs to turn into a picture.

When you snap a picture, light enters through a small opening in the camera's shutter. The light from different colored objects lands on different layers of the film. This light causes changes to take place in the film.

The layers of film act like little sponges. Each layer soaks up chemicals and dyes from the layer below it. In just a few minutes, all the dyes rise to the top of the film. The dyes make up the color picture that you see.

When you send film to be developed, similar kinds of chemical changes take place. There are a few extra steps involved, so the process takes longer. Get the picture?

*Question sent in by Amy Cangialosi, Lady Lake, FL.*



## How is cotton candy made?

Cotton candy is almost all air. That's why a great big bite turns into just a tiny spot of sugar in your mouth!

Besides air, the other ingredient in cotton candy is what's in most candy—sugar. The air and the sugar are mixed by a special machine to make cotton candy fluffy.

You've probably seen a cotton candy machine at an amusement park. The machine has a large metal bowl that spins around. Beneath the center of the bowl, there's a heater. Sugar is poured into a tube in the middle of the bowl. The heat melts the sugar. Then the liquid sugar flows out through narrow openings in the tube. When it hits the surface of the spinning bowl, the sugar cools. As the sugar cools and spins, it turns into long, sticky threads.

The person running the machine gathers up the sugary threads with a paper cone. A fluffy cloud of candy is built up. Lots of air is trapped among the threads. And you've got a sweet treat.

*Question sent in by Kathy Makin, Ontario, Canada.*





The brown horse looks  
very small, but she's not.

# IT'S A SMALL WORLD RAISING

by Edith Pendleton

What animal the size of a German Shepherd dog is suitable for you to ride? Here's a clue. This gentle mystery animal can run very fast. But even if you were galloping along on it, you wouldn't get scared. The little fellow is only waist high. It sounds like a horse. But can any horse be the size of a large dog? Sure it can! If it is one of a special kind called *miniatures*.

If you ever meet a miniature horse, you'll remember it. One of these tiny animals is only 34 inches (86 cm) high at the shoulder. Side by side with a standard-size horse that's 60 to 70 inches (152-177 cm) tall, a miniature looks like a baby. But miniatures are full-grown horses.

Miniatures are not a separate breed of horses. Instead, they can look like almost any of the regular horse breeds. Miniatures can be stocky like heavy work horses. Or they can look like light-weight racers. Miniature horses come in all colors, too. They can be cream-colored palominos,

glossy blacks or spotted pintos.

How did these horses get to be so small? It wasn't an accident. People called horse breeders developed them. Just like the people who breed fancy dogs or cats for shows, breeders had to control the mating of their horses. If they only let small mares mate with small stallions, then the horses produced small colts. Over several generations, the horses that were born got smaller and smaller.

At first, people wanted to breed tiny horses for a practical reason. Hundreds of years ago, horses were needed to pull loads of coal inside coal mines. They were strong enough for this work but too tall to fit into the low tunnels of mines. So people began trying to develop smaller ones. They worked on this for a long time. And they were successful. Strong little horses were bred to work in mines. Later, people kept right on breeding even smaller horses to



provide animals for kids to ride and play with.

### Little Wonders

"Miniatures are especially good with kids," says Christiaan Stoudt, 12. "They seem to know that they are around children."

Christiaan knows more about little horses than most people. He lives near a herd of 80 miniatures. They are owned by his grandfather in Austin, Texas. Living with miniatures is a lot of fun for Christiaan.

"After school, I like to take my horse down to the end of the pasture and run him all the way back," he says. Christiaan can enjoy the ride without feeling frightened like he might on a great big horse.

Christiaan helps around the farm by taking care of the newborn miniature colts. "I've raised some of them from babies," he says. "When a miniature horse is born, it's so small you can carry it around in your arms. Some of them want to be held and played with." ♦♦

**Right:** On his miniature horse, Christiaan Stoudt is practicing riding around barrels. For the boy and his horse, it's like learning to run an obstacle course.



## MINIATURE HORSES



A miniature horse is just the right size for a 12-year-old like Christiaan. He enjoys riding these horses that his grandfather raises.



**Right:** There are regular-sized horses as well as miniatures at the Gettysburg Miniature Horse Farm in Pennsylvania.



One miniature horse is a special favorite for Christiaan. She's called Black Beauty. Together, he and this mare take part in horse shows all over the United States and Canada. In each show, Christiaan and Black Beauty walk around a ring. Judges watch how well he and other kids handle their horses.

"The horse walks along on the left side," he says. "It should obey your commands perfectly." Black Beauty apparently does just that! Last year Christiaan and his horse won second prize at the state fair in Dallas, Texas.

### **Small Beginnings**

Would you like to see some miniature horses? There are a number of special farms that raise them. Visitors are welcome at many miniature horse farms. For example, there's the Gettysburg Miniature Horse Farm in Pennsylvania. People who go there get to see 50 special miniatures. These horses are called *Falabellas*.

Falabella horses were first developed in South America, starting about 100 years ago. They're named for Juan Falabella, a rancher who wanted smaller horses for children to ride. The Falabella family bred smaller and smaller

**Left:** Miniature horses are gentle and alert. At the Gettysburg Miniature Horse Farm, they're trained to perform in shows for visitors



horses for several generations. Finally, they produced the first miniature. Now there are about 350 Fallabella horses in the world.

Most of the horses at Gettysburg are just 20 to 32 inches (50-81 cm) high. They can carry only small children. But a team of these little ones can easily pull carts for visitors to ride in. Fallabellas are very sturdy. They may weigh 90 to 120 pounds (41-54 kg) when full-grown. But every pound is packed with strength.

The Gettysburg Falabellas also perform in shows to entertain people who come to visit. These horses are alert and gentle. They also learn quickly. Among their tricks are the ability to jump and to run barrel races. They also seem to count by tapping their hooves a certain number of times at the command of a trainer.

"Sometimes people buy these miniatures for their children, so they can learn how to handle and care for a horse," says Stuart Erickson, one

of the owners of the Gettysburg Farm.

## It's Not All Horseplay

Falabellas are only one kind of miniature horses. There are many others, too. All of them are raised to be pets. Because they're so small, miniatures need very little food. And they can be kept in a horse lot the size of an average yard. Miniature horses have another advantage over bigger horses. They have a heart the size of a standard horse's heart. So a miniature may live 10 years longer than a larger horse.

But even proud owners of miniatures might admit that these animals aren't the perfect pet for everyone. Taking care of even a small horse calls for a lot of time and work. As Christiaan Stoudt has found out, he has to head for the barn right after school every day. He must feed the horses, clear their stalls and give them exercise. Even though a miniature horse is about the size of a large dog, it sure needs a lot more care!

## How Many Hands In a Horse?

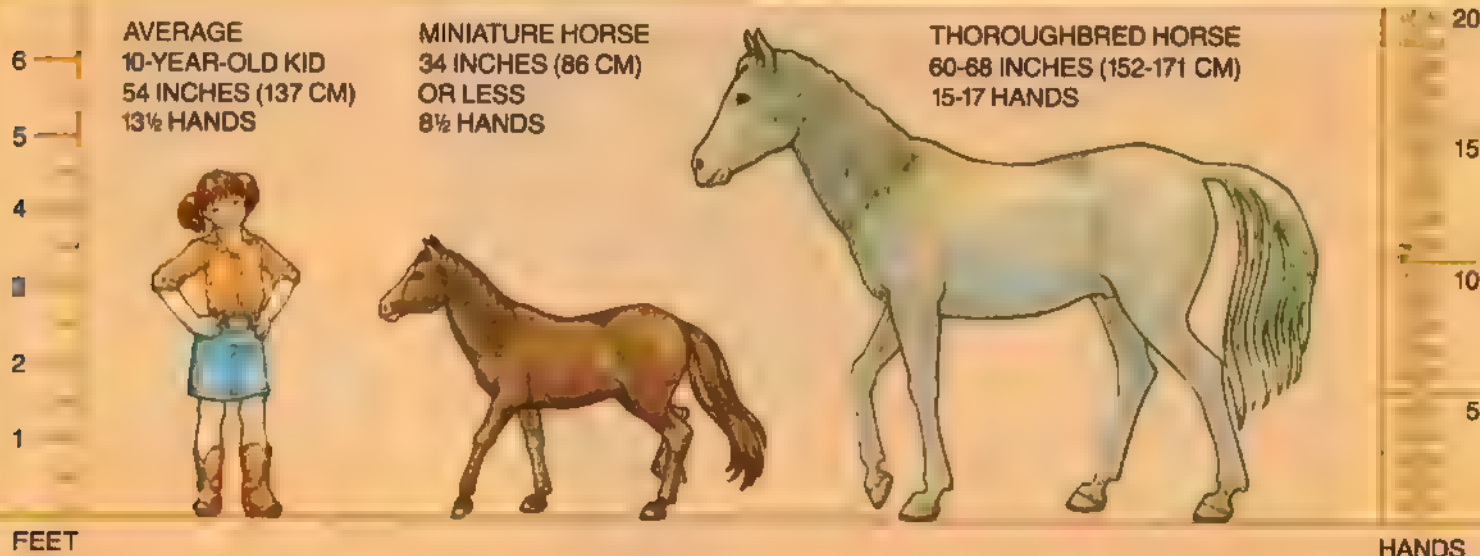
The height of most people and animals is measured in feet. But the height of horses has a different measure. It is in hands.

This kind of measuring started before people had rulers or yardsticks with which to measure a horse. Say they wanted to know how tall a horse was. They simply put one hand next to

the other, moving up from the ground to the top of the horse's shoulders. They would say the horse was 14 hands tall. Each hand is about four inches (10 cm) wide.

Below you can see how standard horses compare with miniatures in terms of hands. An average thoroughbred horse stands 15 to 17 hands high. But a miniature measures only about eight hands in height.

Want to know how you measure up? The average 10-year-old kid is 54 inches (137 cm) tall. If that is your height, you are 13½ hands high.





# List of the Month

## Short Shorts

by Megan Srine and H. William Srine

A shark you can hold in your hand? Horses aren't the only miniature animals. Here are eight that are found in the wild.

**You Little Rat** What's less than two inches (5 cm) long, looks sort of like a rat and can hop 10 feet (3 m) in a single bound? It's the pygmy jerboa (jer-BO-uh). This spoon-sized rodent lives in the deserts of Africa and Asia. All jerboas—including the six-inch (15 cm), regular-sized ones—sleep during the day. They often lie on their sides to stretch out their long hind legs.



**A Real Dilly** Want to see a tiny tank? Check out the armadillo. It's covered with thick, armor-like skin. Unlike bigger armadillos, which can grow to be three and a half feet (1 m) long, the six-inch (15 cm) pygmy only has scaly skin on its back. When in danger, an armadillo rolls itself into a tight ball. Even jaguars, which like to snack on the little critter, can't pry one open.



**Hippo Heeray!** As a rule, hippos weigh five tons and can cover 15 feet (4.5 m) just by standing in one place. However, there is an exception to this rule. It's the pygmy hippopotamus. At five feet (1.5 m) long and 500 pounds, pygmy hippos lead quiet lives in the streams, forests and swamps of Africa. These gentle animals don't like to push their weight around, so they have few enemies.



**Short Shark** If you think sharks only come in the JAWS-sized variety, you're in for a surprise. The spined dogfish doesn't look much like a shark. But it is the smallest shark in the world. When full-grown, it is just the size of a pencil—about six inches (15 cm) long. For such a small shark, it has plenty of teeth. Like most sharks, it has several rows of choppers.

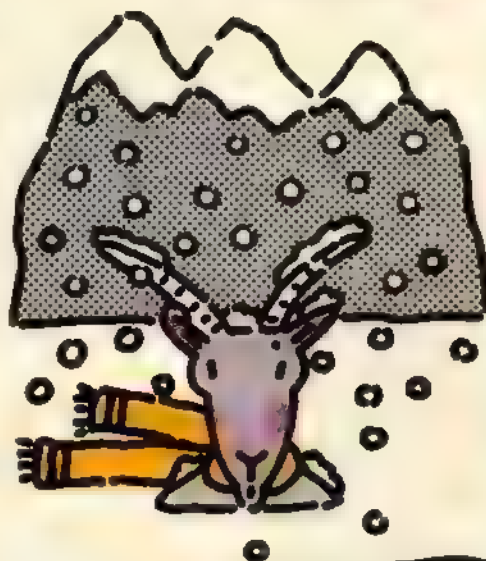




**A Whale of a Tale** The pygmy killer whale is about seven feet (2.1 m) long. That won't exactly fit in the back seat of a Toyota! But, compared to the 19-foot-long (5.8 m) killer whale, it's a midget. Only four pygmies have ever been caught. They were found in the Pacific and Atlantic Oceans. Since it's so hard to catch these sea mammals, not much is known about them.



**Mini Rattlers** If you're not crazy about snakes, you might like the pygmy rattlesnake. It's a small version of its full-sized relative. About a foot and a half (.4 m) long, it's one fourth the size of a big rattler. Like regular rattlesnakes, pygmies kill their prey with poison they shoot from their fangs. The small rattlers aren't as poisonous as big ones. But —ouch!—it still hurts.



**Daa Daa Blue Sheep** The blue sheep isn't really a sheep. It's something like a sheep and something like a goat. The two-foot-high (.6 m) pygmy blue sheep live in the mountains of Asia. Blue sheep are blue just once, the first winter after they're born. Then their coats turn gray. In the face of danger, they stand very still. They blend right in with the rocky scenery.



### **Small, Smaller, Smallest**

There are three kinds of mini-antelope in Africa. The Suni is 15 inches (28 cm) high. Bate's dwarf antelope measures 12 inches (30 cm) high. And don't overlook the royal antelope, although it would be easy to do so. They are no higher than 10 inches (24 cm). All three are shy and fast. When frightened, a royal antelope may leap nine feet in a single jump.





# Contact Report

**Can You Dig It?** Planting something at school often means an orange or bean seed in the classroom. But some kids in Los Angeles went one step further. They actually planted some trees—outside the school, of course.

A year ago, all 650 kids at Dixie Canyon School set out for nearby Sepulveda Recreation Area. The trees there were cut down long ago as land was cleared for farms. And without trees for food and shelter, the birds and wild animals left, too. Now, by replacing the trees, the Dixie Canyon kids are helping to attract animals back to the area.

The kids planted over 600 trees with the help of adult experts. Each student got a chance to dig a hole in the ground. Next, a protective cover of mulch was added and a small tree was planted.

The work was hard. But when the kids finished, several said, "Look what we've done—that's neat."

—Written by Howard Stapleton



School kids in Los Angeles planted these trees.



Colored eggs are laid by a special kind of chicken.

**Incredible Eggs** Eggs that are pink, pale green, orange and turquoise? That's what Robert Richards keeps in his refrigerator! And he's not painting them, either. These naturally colorful eggs come from chickens that Robert raises.

When one of these Easter Egg Chickens lays an egg, it comes out a pastel color. But otherwise, the eggs look like ordinary eggs.

Easter Egg Chickens are also called Araucanas (ar-ah-CA-nas). They are natives of Central and South America. But Robert gets his flock from a chicken hatchery in Pennsylvania. Then he tries experiments in breeding more chickens at his home in Connecticut. Robert would like to get even wilder colors in the eggs.

Pretty as the eggs are, they taste just like regular eggs. So Robert and his family often eat them. After all, you can't have an Easter egg hunt every day of the year!

—Written by Joanna Foley

Story suggested by Jacqueline McCoury, Asheville, North Carolina.



# Contact Report

**Magic Carpet?** You've heard of wind power and solar power. But hold on, now there's carpet power. If you walk on a new kind of carpet, your footsteps could produce electricity.

The carpet was invented by Roy Lundgren, a toolmaker from Ft. Lauderdale, Florida. He wanted to create a machine that would make energy without using lots of fuel. So he built a carpet with small lever-like devices underneath. As people step on it, their weight moves the levers up and down. The levers then turn a shaft that powers an electric motor.

"It's designed for areas with lots of people, like subway stations, airports—even pizza parlors," he says.

There is one problem though. People have to keep walking on the carpet to keep the electricity flowing. But Roy believes his invention might be used in places where electric lights are needed only when people are around.

—Written by Renée Skelton



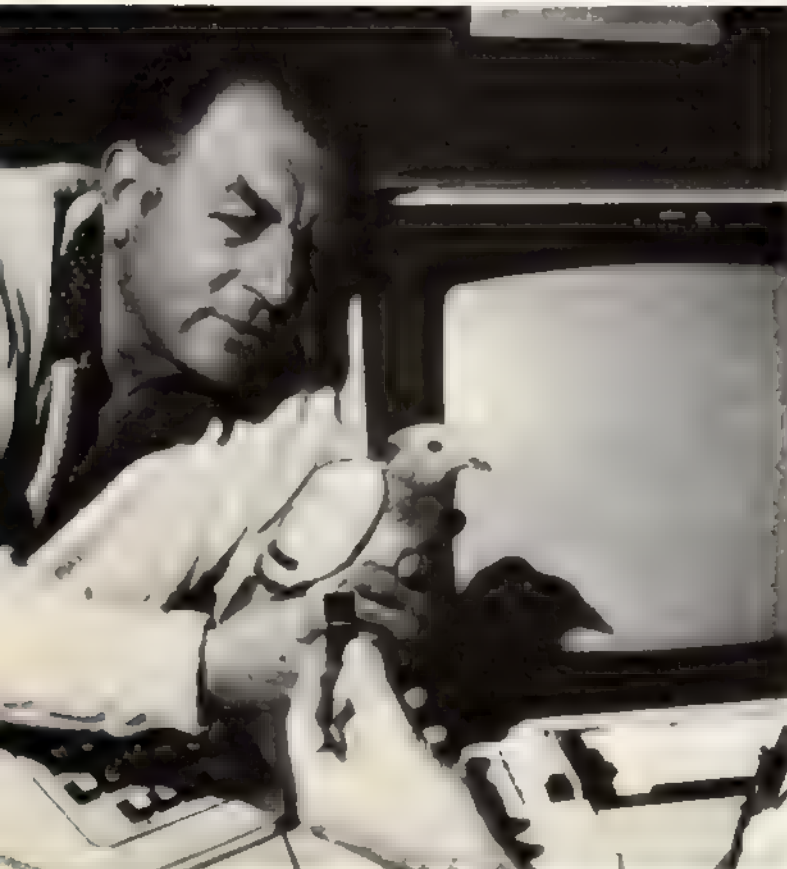
This invention is a carpet that helps make electricity.

**It's For the Birds** Lockheed is a modern company that makes rockets and jet planes. But planes aren't the only things with wings around the office. There's also a flock of carrier pigeons. What an old-fashioned way to deliver messages!

The idea came from Lockheed worker Robert Nelson. He thought these birds could save the company thousands of dollars.

Lockheed often had to send drawings from one California office to another. When a motorcycle rider delivered them, it took four hours. Now carrier pigeons deliver the messages in just 40 minutes. And the only cost is a little birdseed! —Written by Alijandra Mogilner

**What's That?** Have you read about a kid who invented something new? Or one who set a new science record? Then cut out the story and send it to us. If we use it you'll get a CONTACT T-shirt. Include your name, address, T-shirt size and the newspaper or magazine the story came from. Write to: **The CONTACT Report**  
P.O. Box 599  
Ridgefield, NJ 07657



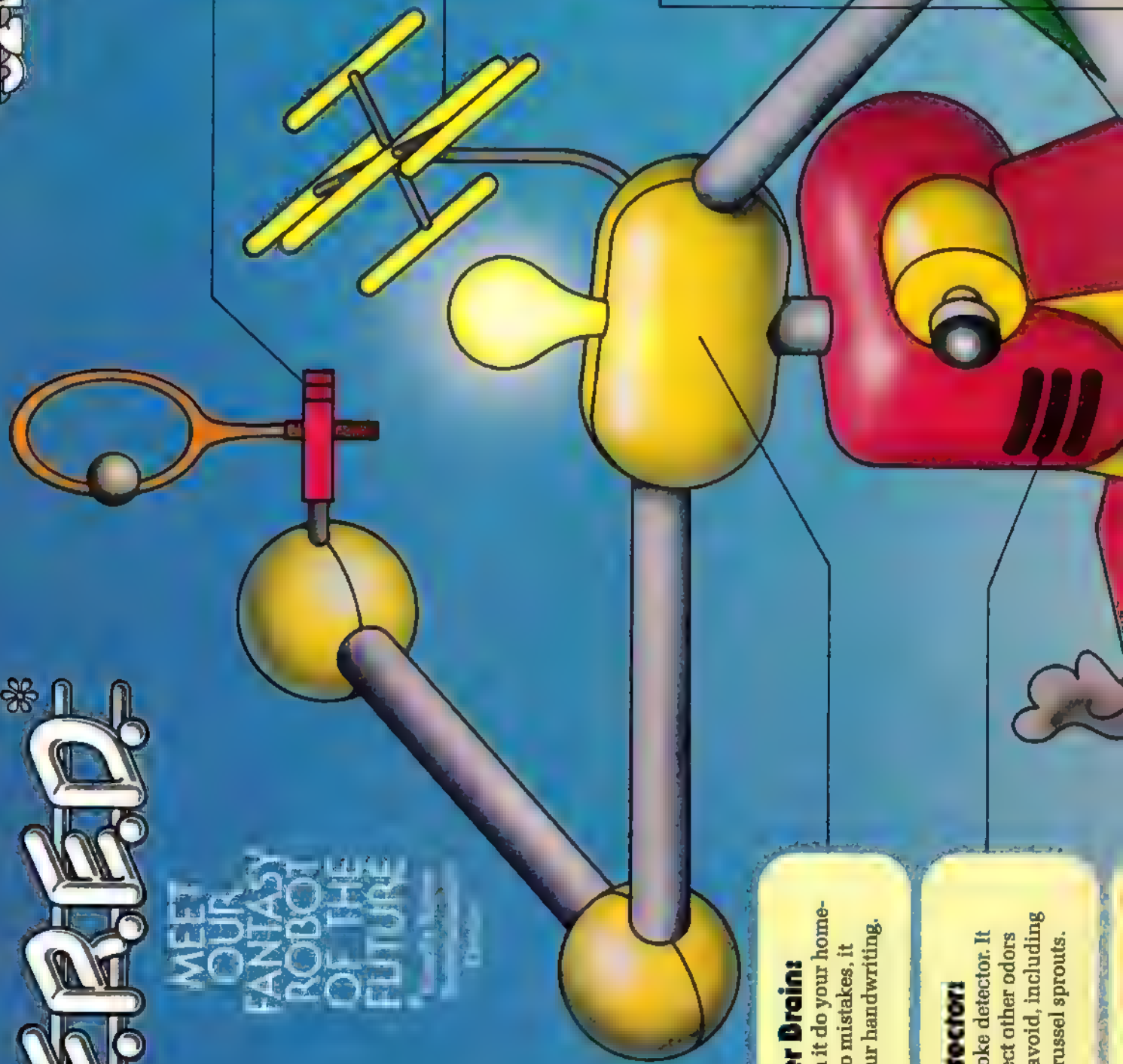
Pigeons sometimes carry messages for a big company.



# CONTACT

# \*F.R.I.E.D.\*

MEET  
OUR  
FANTASY  
ROBOT  
OF THE  
FUTURE



## **Adjustable Game**

**Arm:** Special arm can be adapted for swinging tennis racket, throwing baseball and tossing frisbee. It's also great for holding your hand in scary movies.

**Antenna:** Picks up round the world radio shows and translates them for you. Carefully blocks out all objectionable commercials.

## **TV Monitor:**

Shows reruns of your favorite television shows. It also plays great arcade games.

## **Adjustable Seat:**

It can rise as high as 10 feet and is ideal for parade watching.

## **Computer Brain:**

Not only can it do your homework with no mistakes, it does it in your handwriting.

## **Odor Detector:**

Acts as a smoke detector. It can also detect other odors you wish to avoid, including skunk and brussel sprouts.



## Electronic Tongue:

Great for licking stamps and envelopes. It will also stick out its tongue at your friends when you get mad at them.

## Micro Wave Toaster

**Oven:** Ideal for heating hot dogs and pizza. This unit can be programmed to burn foods you don't like.

## Gum Rejuvenator:

Stick your old chewing gum in here. One hour later out it pops even better than new.

**Automat:** Ultra-sensitive hearing device picks up sound of your stomach growling and dispenses lots of chocolate cookies, pie and ice cream.

## Jogger Ramp:

Great for running on those cold winter days. The ramp is also handy for people who are too lazy to walk their dogs.





# Forest

## A CONTACT QUIZ



### Red Uakari Monkey

About the size of a cat, this monkey lives in the Amazon tree tops. The uakari is easy to spot. Just look for the monkey that is almost completely bald. Need a bigger clue? When this monkey is angry or excited, its face blushes beet red. The uakari also makes a noise that sounds like a person laughing hysterically.

The Amazon rain forest in South America is just crawling with strange and wonderful animals. Six of these can be found there. The other two animals here live only in your wildest imagination. Can you pick out the two forest phonies? Answers on page 37.

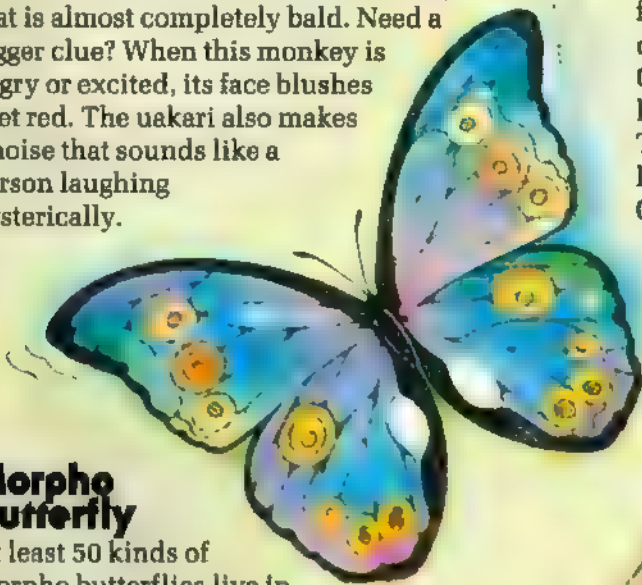
### Golden Cock-of-the-Rock

Like many birds of the Amazon, the Golden Cock-of-the-Rock is very colorful. The males have bright orange feathers, eyes and feet. They are famous for performing a mating dance on a stage of smooth rock or tree roots. One at a time, the males spread their wings, hold their heads high and strut back and forth. The dark brown female birds watch and utter high-pitched screams. It's a little like a Cock-of-the-Rock concert!



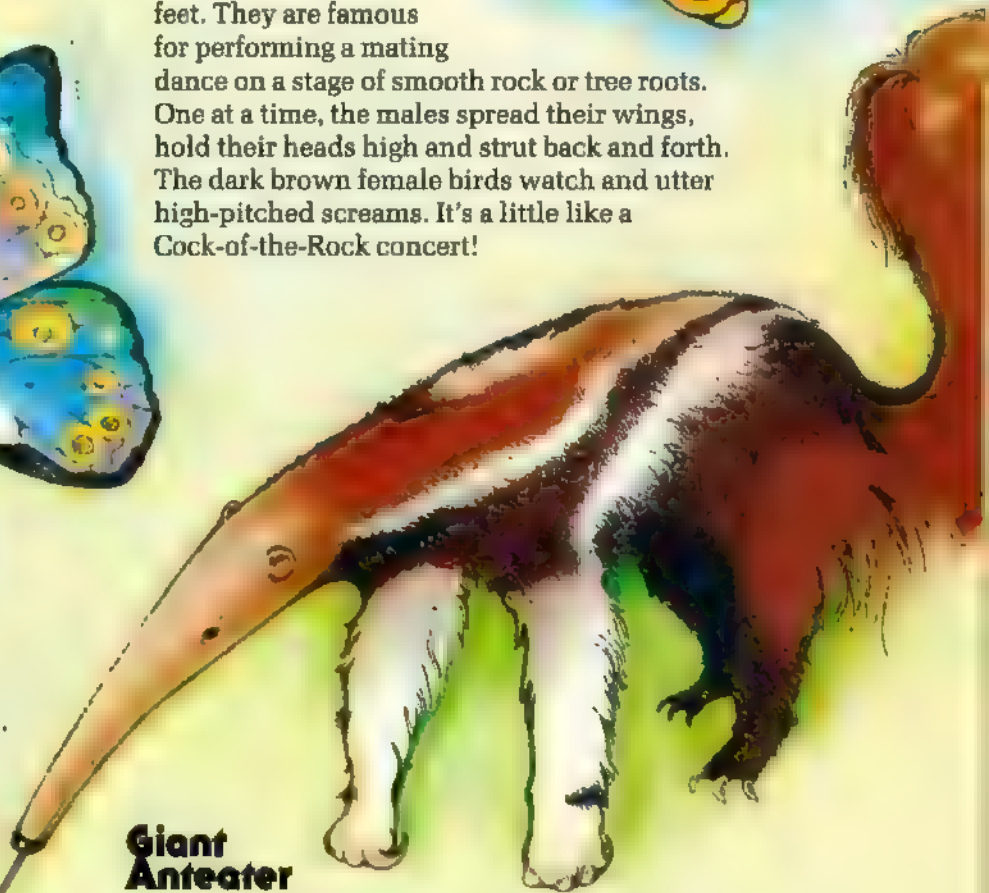
### Morpho Butterfly

At least 50 kinds of morpho butterflies live in the Amazon rain forest. The largest ones can spread their wings nearly seven inches (31.8 cm). This giant butterfly's shiny blue upper wings change to green or purple in the sunlight. Morphos also have large spots on their wings. The spots look just like owl eyes. So other animals get scared and leave the morpho alone.



### Giant Anteater

This oversized anteater has a long snout with a tiny round mouth at the end. When this nosy animal finds a nest of insects, it rips the nest apart with powerful claws. Then it pushes its long nose inside. The anteater pokes out its long sticky tongue. Tiny insects stick to its tongue and—SLURP!—it's dinner time!





# Fakers?

by Michele Lyons

## Striped Adida

This small cousin of the raccoon has tough leathery skin decorated with zebra-like stripes. Some adidas have brown stripes. Others are gray or dark green. Stripes allow these animals to blend into the surrounding scenery. It escapes from danger by running very, very fast on its short paws. This little critter is so speedy that a whole brand of sporting goods was named after it.



## Sloth

The sloth simply hangs upside down from tree branches, using its long hooked claws. It is so lazy that even getting hungry won't make it move.

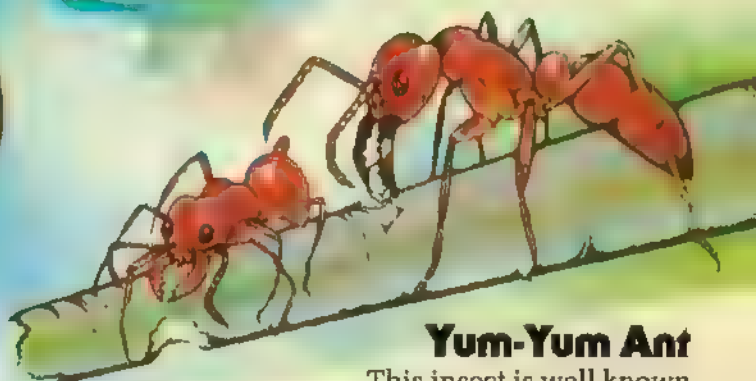
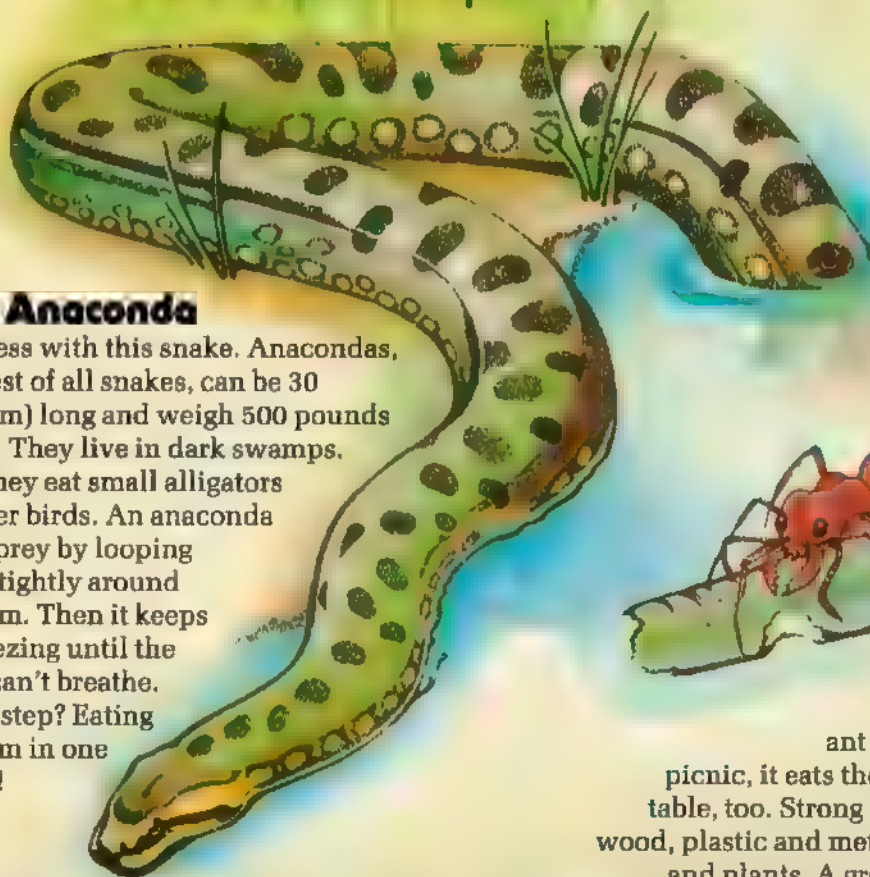
It just eats the nearby tree leaves and buds. Sloths stay well hidden from their enemies because green algae grows in their hair. These animals can only come down from the trees once in a while.

Then they slither along the ground v-e-r-y s-l-o-w-l-y.



## Giant Anaconda

Don't mess with this snake. Anacondas, the largest of all snakes, can be 30 feet (9.1 m) long and weigh 500 pounds (227 kg). They live in dark swamps. There, they eat small alligators and water birds. An anaconda kills its prey by looping its coils tightly around the victim. Then it keeps on squeezing until the animal can't breathe. The last step? Eating the victim in one big gulp!



## Yum-Yum Ant

This insect is well known for its big appetite. The yum-yum ant eats everything and anything. At a picnic, it eats the food, then wolfs down the picnic table, too. Strong scissor-like jaws allow it to chomp wood, plastic and metal as easily as it chews up animals and plants. A group of these ants can chew a wood hut to splinters in a few hours.





This premature baby is being cared for in a special nursery. His mother and sister often come to visit.

by **Nora Zamichow**

Imagine a baby so tiny that his feet are no longer than your little finger! A baby that a ring for an adult could fit like a bracelet. That's how tiny Brian and Chris Cinque were when they were born.

When the doctors showed these newborn twins to their mother, Janet, she was amazed. At first, she thought her twins were too tiny to survive. They were much smaller than normal babies because they were born three months early. But Brian and Chris did live, thanks to the special care they got at New York City's Presbyterian Hospital.

Today, the twins are healthy, normal and three and a half years old. If you didn't know they were born early, you would never be able to tell!

### **The Inside Story**

Like Brian and Chris, many other babies are also born early. A human baby usually develops inside its mother for nine months, or 38 weeks. But about 10 percent of all babies are born several weeks sooner. Babies who are born early are called *premature babies* or *preemies* (PREE-meas).

One problem is that preemies are so small. Full-term babies, who stay inside their mother for nine months, weigh an average of seven pounds (3.1 kg). Babies who are born early sometimes weigh only a little over one pound (.45 kg). Some bigger

# SAVING

ones are about five pounds (2.2 kg). But the smaller the baby, the harder it is to survive.

Because premature babies are not fully developed they need extra care. Their skin is thin as paper and very delicate. Sometimes their hearts are not fully formed enough to pump blood properly. To help solve these problems, specially trained doctors and nurses and special medical equipment are needed. All these are found in an *intensive care nursery* in a hospital. At New York City's Presbyterian Hospital, the intensive care nursery is considered one of the best in the United States.

### **The First Hours**

The special care begins right after birth. As Dr. John Driscoll, director of the nursery, says, "The first five to ten minutes of life are the most critical." Right after preemies are born, doctors rush them to the transitional nursery. There, nurses and doctors first work to make sure that the baby can

**Right:** Each baby in this nursery was born early or has other health problems. They all need extra care.





Even very small babies seem to enjoy it when people sit and rock them.

breathe. Sometimes a premature baby's lungs are not fully formed. So the medical team must help it breathe by giving oxygen through a clear plastic box fitted over the baby's head. Oxygen from a container flows into the box through tubes.

Usually a baby stays in the transitional nursery for only about two hours. Once a baby is breathing regularly, it is moved to another room called the intensive care nursery. A team of doctors and nurses takes over caring for her.

Here, most of the babies are placed in *Isolettes*. These clear plastic cases are warm and free of germs. The body of a preemie is still too tiny to keep a steady body temperature. So these babies are kept warm in their *Isolettes*. *Isolettes* also filter the air that the baby breathes. Every baby has his or her own *Isolette*.

Each baby also has a monitoring machine. It helps the nurses keep track of each baby's heart-beat, blood pressure and breathing rate. Wires connect this machine to devices that are placed on the baby. Although the devices are attached to the surface of a baby's skin, they don't hurt in any way. If anything goes wrong with a baby's heartbeat, the

# BABIES

## SPECIAL HELP FOR EARLY ARRIVALS





machines warn the nurses right away.

### **Nurses in the Nursery**

There is room for 35 babies in the intensive care nursery at Presbyterian Hospital. This calls for a lot of machines. But the nursery isn't a scary-looking place. Nurses try to make the three rooms look friendly and cheerful. There are rocking chairs for parents. Music is playing. Stuffed animals can be seen scattered around the room.

Premature babies have nurses to take care of them 24 hours a day. Each nurse always takes care of the same baby. This way, the baby and his family get to know their nurses. Since these nurses spend so much time with the preemies, doctors sometimes talk with the nurses before deciding about a baby's treatment.

Kiyoko Liozzo, a head nurse, has worked at this nursery for almost 10 years. At first she thought premature babies were so small they wouldn't seem like individuals. But she changed her mind right away. "These babies have their own personalities. They let you know what they like," says Kiyoko smiling. "Premature babies are amazing."

### **Visiting the Babies**

This nursery is open to visitors 24 hours a day. On weekends, a baby's brothers and sisters come to visit. When Chris and Brian Cinque were here,

**Right:** Nurses and doctors use special equipment that can alert them very quickly if a baby needs help.



**Right:** A nurse can examine a baby through the round portholes of its Isolette. Here the nurse listens to a baby's breathing with a stethoscope.





their 12-year-old brother, Paul, often came by.

All of the Isolettes have two hand holes. Paul could always reach in and touch his brothers. But first he had to wash his hands so that the babies wouldn't be exposed to germs.

Chris and Brian were so small that they weren't allowed to leave their Isolettes right away. The first time Paul and his parents held them in their arms, the twins were five weeks old. To prevent Brian and Chris from catching cold, a nurse showed Paul how to hold them under a heat lamp. "Boy, was it hot!" says Paul.

Next, Paul learned about the twins' eating hab-

its. Many babies in this nursery are fed milk every three hours. This happens throughout the night. Some babies can't eat much at one time. Brian only took about two drops. But babies like Brian can gradually be given more and more milk.

As a baby gains weight, the medical team starts getting it ready to go home. Generally, that happens close to the time when the baby should have been born. So Brian and Chris, who were born three months early, left Presbyterian Hospital three months later. Today, they don't even remember their stay in the nursery there. But those three months saved their lives.



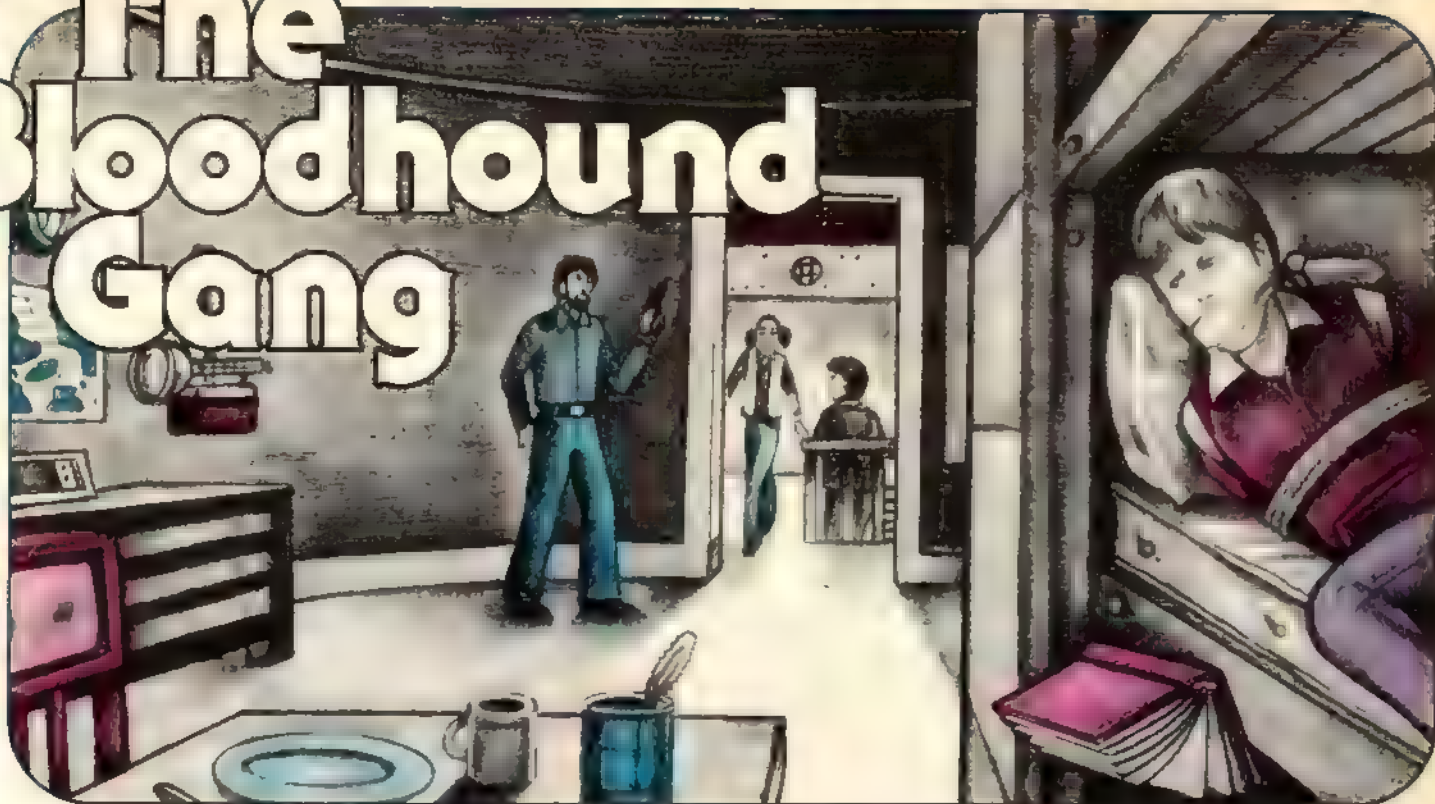
**Left:** Nurses keep careful records of how much a baby weighs. A steady gain in weight is a good sign that a baby may be able to go home soon.



**Left:** Brian and Chris Cinque are two of the hospital's many success stories. They went home when they were three months old. Here's how they looked at 22 months



# The Bloodhound Gang



## The Case of the Vanishing Lighthouse

### Part Two

In last month's episode, The Bloodhound Gang visited the Port Town Lighthouse. It was on an island off the coast of the small New England village where they were vacationing. On the way to the island, Gertie Adams, the owner of the fishing boat on which they were riding, told them about a boat that had wrecked outside the harbor the night before. The wealthy passengers from the boat had told a strange story. They talked about a blacked-out lighthouse beam, a vanishing ship and a mysterious rescuer. Gertie thought they were crazy, and so did Port Town's Chief of Police Bradford.

Once inside the lighthouse, the Gang met the lighthouse keeper, Angus McPhee. He was both unfriendly and strangely ignorant about the lighthouse. After this visit, the Gang convinced Chief Bradford to borrow a fancy cruiser and accompany them on a boat ride to help investigate the wreck. They felt certain it had not been an accident. When a storm came up, the boat tried to make for shore and headed for the light of a ship. Suddenly, the light vanished, and

by Lisa Eisenberg

their captain, Gertie's son, Seth, shouted that they were about to wreck.

The hull of the shiny white cruiser gave a loud crunch. Vikki remembered Chief Bradford's explanation that a reef was a ridge of rock lying just under the surface of the water. "Probably caused by a shift in the ocean floor at some time," the Chief had said.

"Interesting," Vikki thought grimly. "But it's not going to help me now." The boat tilted at a crazy angle and angry waves broke over the deck. The passengers tried to cling to the railings, but their feet slipped out from under them.

"Help!" Vikki cried as she slid into the foaming sea. Just as the wild waters closed over her head, iron fingers gripped her arm and yanked her back up to the surface. She was tossed into the bottom of a large, inflatable lifeboat.

Vikki struggled to her knees and peered back through the darkness. She saw a shadowy figure moving on the deck of the wrecked cruiser, but the rain made it difficult to see. She heard Chief



Bradford's voice. "Thank goodness you're here. Ricardo and Zack are safe, too."

"But what happened?" asked Zack. "Who pulled us out of the water? And where's Seth?"

The Chief looked grim. "I've been shouting for him. Seth must have swum for it. Unless..."

Vikki gripped the side of the wildly bouncing lifeboat. "I don't know about Seth's part in this. But this wreck proves our theory."

## The Gang's Theory

"How about letting me in on this theory of yours?" snapped the Chief.

"Well," said Vikki, "we learned today that the boat that wrecked was carrying very wealthy people. And the passengers all said they had seen a mysterious vanishing ship—but not the lighthouse beam!"

"And also," added Zack, "someone helped the people off the wreck—just like us."

"Wreckers!" yelled Chief Bradford. "It's one of the oldest crimes in history. Why, I'll bet there wasn't any ship in the harbor at all tonight."

"But we all saw the ship's light," said Ricardo.

"We all thought we did. But what we really saw was a lantern being swung so it looked like the light of a ship bobbing up and down on top of the water. Someone was hiding behind a dune on shore and showing us the light. We steered right for it—and they led us onto Lost Soul Reef! Wicked people have been wrecking ships and plundering their cargoes for hundreds of years—before lighthouses, that is."

"Say," exclaimed Ricardo. "The wind is dying down. The waves don't seem as high anymore."

Ricardo found an oar on his side of the lifeboat, and he and the Chief directed their craft toward the nearest point on the craggy coast. "Well," gasped Ricardo as he paddled, "we may have solved the mystery of the disappearing boat. But we haven't explained the lighthouse beam that wasn't there. I can't see it now."

The Chief stopped rowing and turned around. "No one will ever convince me that Angus McPhee is in cahoots with a wrecker!" he said.

In a few minutes the lifeboat had reached a stony outcrop on the shore. The Chief climbed

out onto a ledge and turned back to help Vikki, Ricardo and Zack. The foursome carefully clambered up on the wet, slippery boulders.

"The wrecker must have come ashore here," whispered Zack. "I'm going to have a look."

Before anyone could move, Zack had taken off across the rocks. Vikki, Ricardo and the Chief had no choice but to follow. Slowly, they picked their way over the dark surface.

Suddenly, Zack's voice rang out in the night. "Over here!" he shouted. "I think I've found something. It's... umph!"

Vikki and Ricardo ran toward the sound of Zack's voice. "Ouch!" screamed Vikki. "I just crashed into something."

Ricardo and the Chief ran to her side. Ricardo reached into a wooden box at Vikki's feet. "It's full of radio equipment," he said. "The wrecker's booty."

"He had to abandon it," said the Chief. "He heard us coming and ran off."

## Zack Disappears

The threesome stood up and looked around at the barren rocks. The only sound was the breaking of the waves. There was no sign of Zack.

Suddenly, a boat's motor coughed nearby. "He's getting away!" shouted Ricardo.

"We have to go back to town and find a boat," said Vikki. "I have a hunch he's headed for the lighthouse."

"But the police launch is out on a job," said the Chief. "And there's no time to call the Coast Guard."

"Gertie Adams!" cried Ricardo. "She'll help." The three wet figures hurried back toward Port Town. In less than an hour, they had found Gertie Adams and were back out on The Foggy Dew, chugging toward the Port Town Lighthouse Island.

At last the old boat reached its goal. While the Chief and Gertie tied up the craft, Ricardo and Vikki scaled the stone steps up to the entrance and pulled open the door. They started up the spiral steps, two at a time.

As they reached the living room, a loud crash sounded over their heads. Vikki and Ricardo rushed up to the bedroom and stopped in their tracks. Three figures were tied up and gagged on the triple-decker bunkbeds. A small, white-



haired man lay on the bottom. Seth Adams was in the middle. And Zack was on top. *All About Lighthouses* lay on the floor where Zack had kicked it to get their attention.

Vikki hurried to his side and untied his gag. As she bent to help the other two men, a sheepish Chief Bradford climbed up into the bedroom. Behind him came the burly lighthouse keeper.

"Mr. McPhee!" said Ricardo. "It's good you're here. We..." he broke off when he saw the man's gun.

"That's not Mr. McPhee!" Zack cried.

"It's certainly not," said Chief Bradford. He pointed to the white-haired man on the bottom bunk. "That's Angus McPhee over there. This is Darien Dank—an assistant keeper Angus fired last summer."

"I thought there was something strange about you this morning," said Vikki. "Angus McPhee is supposed to be old—but you're not."

"And," broke in Zack, "you didn't even know if this lighthouse had an occulting or flashing beam."

## Gertie to the Rescue

Vikki heard a soft sound from the staircase. Quickly, she turned to Zack and said in a loud voice, "Just what do those terms mean, Zack?"

Zack blinked in surprise at her sudden interest. "Well, when the beam goes on and off, if the periods of light are longer than the periods of darkness, the beam is called an occulting beam. But if the periods of darkness are longer, it's called a flashing beam."

"Very interesting," snarled Darien Dank. "But it doesn't help me figure out what to do right now. It was going to be such easy pickings. All I had to do was tie up McPhee, dismantle the lantern and shine a light out there on the dune so those tourists would think there was a ship on the harbor. Then you kids had to come around. And to make matters worse, Seth Adams recognized me on the wreck tonight!"

As Dank spoke, a tiny figure carrying a large round bundle appeared on the staircase behind him. Gertie tiptoed up the steps until she was just above the gunman. Suddenly she threw out both hands. A fishing net fell down on Darien Dank's head and covered his shoulders and arms.

As Dank struggled to escape, he tripped and fell over *All About Lighthouses*. Chief Bradford leaped to grab his gun. Minutes later, the wrecker was tied up inside the net.

Later that night, the Bloodhound Gang sat with Gertie and Seth Adams and Angus McPhee in the living room of Chief Bradford's house.

"There's one thing I still don't understand, Angus," said the Chief. "When I came out to talk to you the morning after the first wreck, why did you tell me the lighthouse beam had been working the night before?"

"Dank was pointing a gun at my back! Just the way he was when the Bloodhound Gang came out to look at the lighthouse the first time. Dank and I were hiding behind some boxes in the store room. Then he tied me up when he went out to do his dirty work. It was terrible—but I'm glad of one thing. At least he had the decency to rescue the people he wrecked."

"That's true," said Ricardo. "But it's a good thing we caught him when he did. Someone was bound to get hurt sooner or later."

"Well, I just don't know how to thank you kids," said Angus McPhee.

"You should thank Gertie, Mr. McPhee," said Zack. "After all, she's the one who really got the net results!"

**Next month begins  
an exciting new  
adventure, starring  
The Bloodhound  
Gang.**







# HORSE-PLAY

There's no horsing around with this word hunt. Grab your pencil or pen and circle the 21 different kinds of horses and ponies hidden here. They are written across, up and down and diagonally. And hay, that's not all. Some are backward.

Answer on page 37.

T Y F B E S R D Y E N K C A H  
H C A J S M E E W P P E A X N  
O Z L U R U N R K A X S V I O  
R L A A O S A B K L O R F B R  
O H B C H T Z D Y O S O L J E  
U C E E E A Z R L M H H E M H  
G A L O L N I A B I I R I O C  
H O L G D G P D X N G E A R R  
B C A E D P I N T O H T L G E  
R H P P A C L A V I L R T A P  
E C Q Q S H D T N U A A H N D  
D N A L T E H S I T N U N O M  
R E F N R A W D R I D Q G Z E  
A R A B I A N M S U F F O L K  
T F S A S E L A D S E D Y L C

## Word List:

APPALOOSA  
ARABIAN  
BELGIAN  
CLYDESDALE  
FALABELLA  
FRENCH COACH  
HACKNEY

HIGHLAND  
LIPIZZANER  
MORGAN  
MUSTANG  
PALOMINO  
PERCHERON  
PINTO

QUARTERHORSE  
SADDLEHORSE  
SHETLAND  
SHIRE  
STANDBRED  
SUFFOLK  
THOROUGHBRED

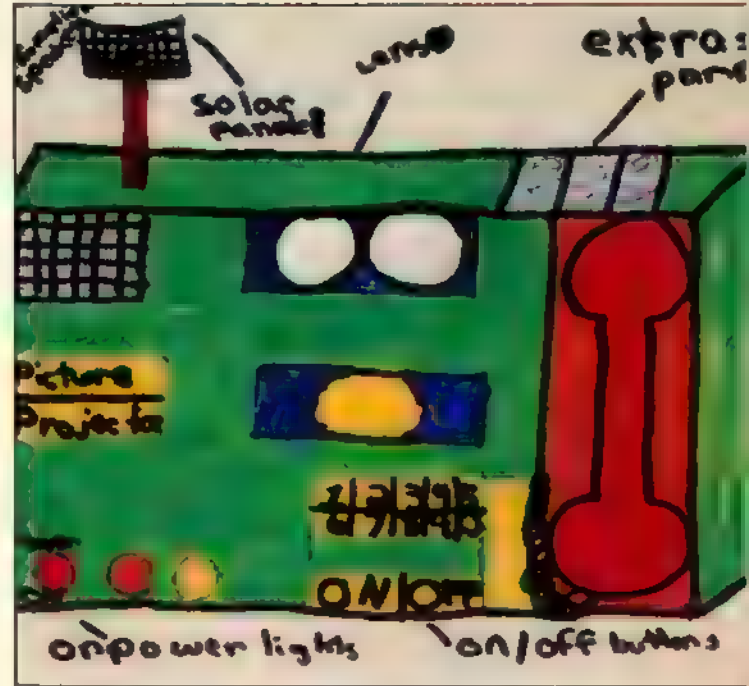


# MAIL

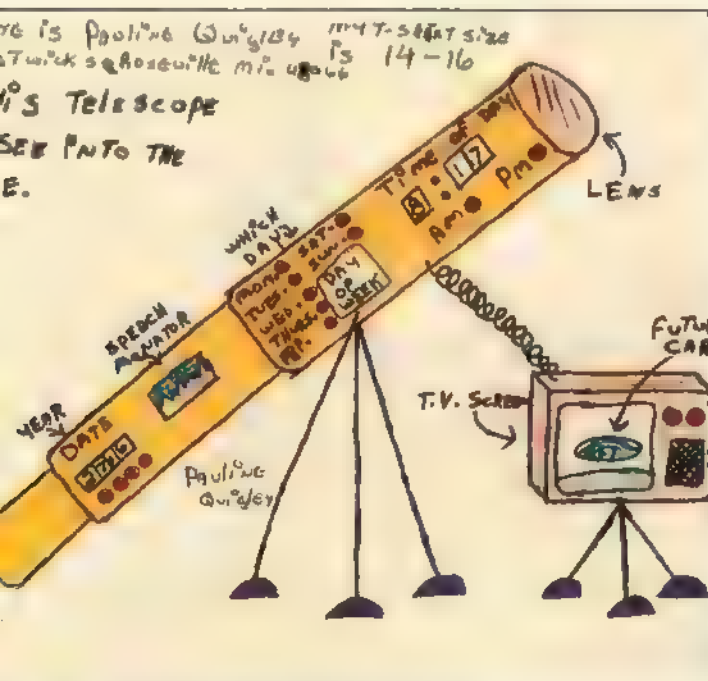
## Future Telescopes Here are a few of our favorites:



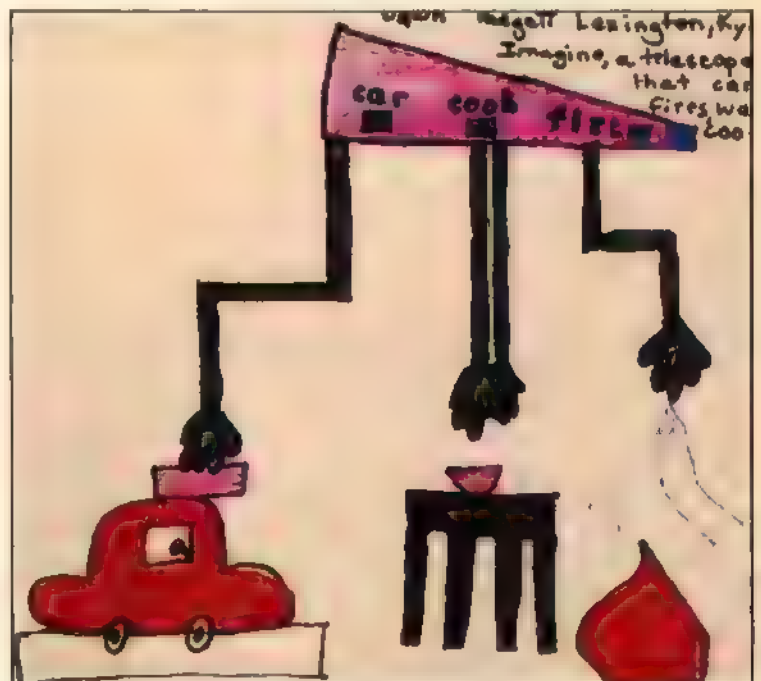
**Leah Anne Moore, Columbus, OH.**  
At night, put on the glasses and see into the sky.



**Erin Stevens, Indianapolis, IN.**  
It can project what it sees on the walls.



**Pauline Quigley, Roseville, MI.**  
This telescope can see into the future.



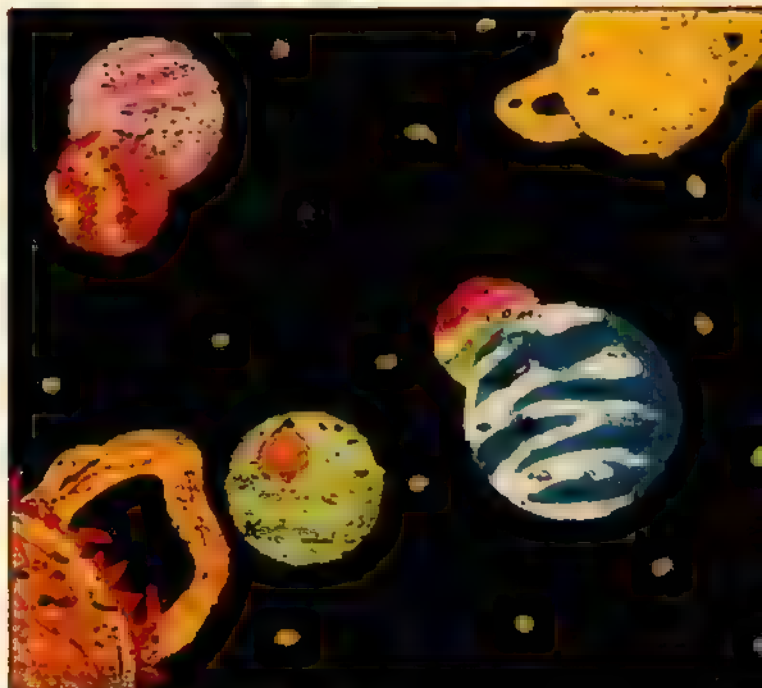
**Dawn Padgett, Lexington, KY.**  
Imagine, a telescope that can put out fires, wash cars and cook!



**Contest Winners!** Here are our favorite Super Sky Sights, seen through your own imaginary telescopes.



**Joanne Hall,** Lillington, NC.



**Eric Ritchie,** Hannibal, OH.



**Sharon Rogers,** Vienna, VA.



**Jenna Karadbil,** Vienna, VA.



# Reviews



Want more information on some of the stuff in this CONTACT? Or just some things to do and see for fun? Keep reading!

## Pet Trips

It will be summer soon and you might be planning a vacation with your family. If that includes your pet, there are some things you ought to know. "10 Easy Steps to Remember When Traveling With Your Pet" is a free bulletin from the ASPCA. It has tips on special things to do to care for pets on a trip. To get a free copy, send a stamped, self-addressed envelope to:

ASPCA, Publications Dep't  
441 E. 42nd St.  
New York, NY 10028



## Horse Books

Remember the little horse tale on page 12? If you want to read more on horses, here are some books to look for at a library or bookstore.

### A Horse's Body True or false?

A horse can hear things through its legs. When a horse runs, sometimes none of its feet touch the ground. Both true! If you don't believe it, find out yourself in this book by Joanna Cole, published by William Morrow.

**Island of Wild Horses** Hundreds of years ago, sailing ships brought horses to Virginia's Assateague Island. Their wild descendants are still there. In this book, Jack Denton Scott describes how they live. *Island* is published by G.P. Putnam's Sons.

**A First Look at Horses** Think all horses are alike? Wrong! They come in many colors, sizes and shapes. Millicent Selsam and Joyce Hunt will show you some of the many

## From Saturn to Butterflies

This review was sent in by  
Sofia Susarret, Dayton, Ohio.

We went to the Museum of Natural History in Cincinnati, Ohio. I went through a dark cave. It was scary. Then we went into a room called Voyage to Saturn. There was a computer there and I got to use it. There was a machine that kept on showing films of Saturn. We saw a butterfly collection and I found the biggest and smallest butterfly there. We had a lot of fun.

Been to a science museum? If you write a review and we use it in CONTACT, we'll send you a T-shirt. Send your review, name, address and T-shirt size to:

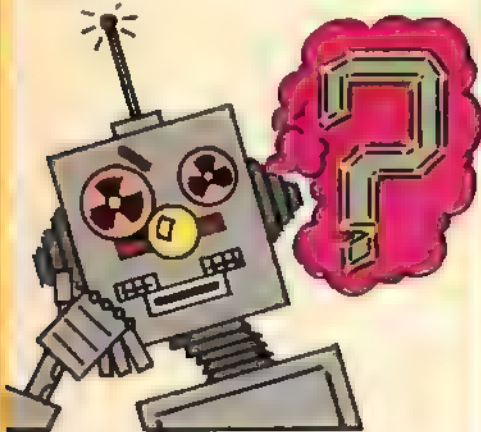
3-2-1 CONTACT: Museum Review, P.O. Box 599, Ridgefield, NJ 07657



# Previews

kinds of horses in this book published by Walker and Company.

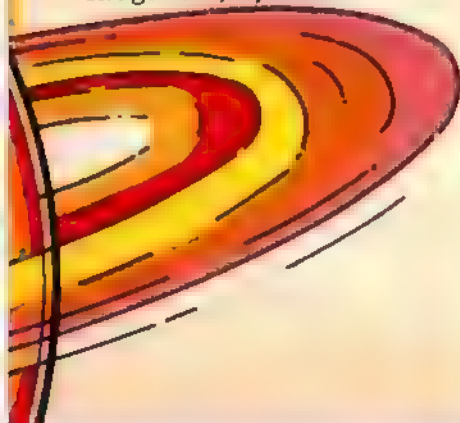
**A Foal Is Born** A foal is a baby horse. In this book by Hans-Heinrich Isenbart, you will see in photographs just how a little horse is born. The book is published by G.P. Putnam's Sons.



## 3-2-1 Contest

Now that you've seen our fantasy robot in this month's poster, we'd like you to send us yours. Dream up the perfect robot helper, playmate, friend, teacher or whatever. Draw it and tell us what it does. Our favorites will be in **CONTACT** and their inventors will get T-shirts. Send your drawing and description, name, address and T-shirt size to:

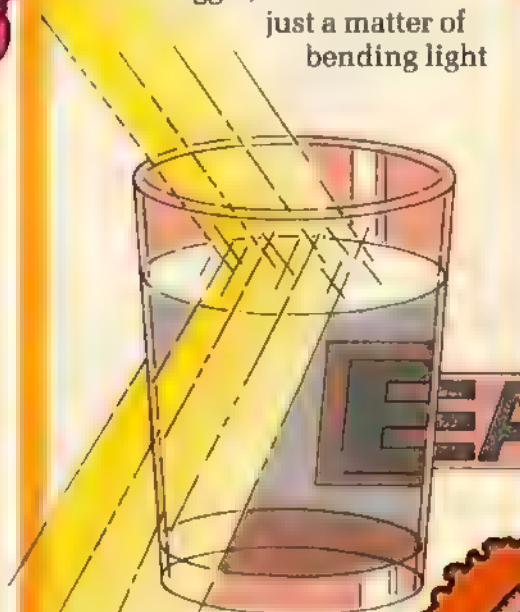
**3-2-1 Contest: Robot**  
P.O. Box 599  
Ridgefield, NJ 07657



## Looking Glass

In *Any Questions?* you learned that eyeglasses help people see by bending light. Another tool people use to see better is a magnifying glass. It also works by bending light.

You may not have a magnifying glass, but you probably can get a glass of water. It works in a similar way. Try looking at the print on this page through the filled glass. Looks bigger, doesn't it? It's just a matter of bending light



rays before they reach your eye.

The rays bend when they hit the curved edge of the glass. Passing through the glass slows them down and bends them more. The water bends them, too. So, when the light rays finally reach your eye, they're coming in at a different angle—one that makes the letters look giant-sized!



## Tree Aid

Maybe you can't plant a tree like the kids in the *Contact Report*. But you can help take care of trees in your neighborhood—especially if you live in the city. Here are some things you can do:

1. Pick up litter under trees. It packs soil and stops the tree roots from getting air.
2. Loosen the top two inches of soil around tree trunks with a trowel. This helps water seep down to roots.
3. Remove weeds around tree trunks. They use food from the soil that trees need.
4. Water soil around trees, especially when it's hot and dry. Do this at the end of the day after loosening soil. Pour water slowly and stop when it starts to puddle.
5. Don't let your dog go to the bathroom on a tree trunk. And don't carve your initials there. These things damage the tree.



## A Short Story

Dear 3-2-1 CONTACT,

I have a short story idea that would really help me and other kids would love. An article on miniature horses. In a few years we are moving to Cape Cod and my mother said we'd get a mini-horse. It would be a help to hear from you!

Emily Wolltzer

Dear Emily,

You must be a mind reader! We had the same idea a few months ago. That's why there's a story about miniatures on page 12.

We're always glad to hear your ideas. So keep those cards and letters coming.

## Question of the Month

Dear 3-2-1 CONTACT,

Why do you send an issue with June when the date of the month is May?

Patrick Lin Kendall  
Dudley, North Carolina

Dear Patrick,

Nearly all our readers get their magazines through the mail. Usually, this takes about a week. But sometimes it takes longer. To play it safe, we mail our magazine four weeks early. That way we can be sure that by the beginning of June everybody has a copy.

## Sky Sight

Dear 3-2-1 CONTACT,

I think I might have seen a satellite last month at sunset. It was very low and seemed to be going down. It wasn't an airplane because the light wasn't flashing. My mother said it was a U.F.O., but she was just fooling. Do you know what it was?

Dara Saffer  
Cape Elizabeth, Maine

P.S. I love the Factoids. My favorite one was that 78 percent of all living creatures are insects and spiders. I told my mother and it really grossed her out!

Dear Dara,

We did some checking for you. But you probably answered your own question. We found out that satellites can be seen after sunset when the sky is fairly dark. They move steadily through the sky. But since we didn't see what you saw, we can't be sure that it really was a satellite.



P.S. If your mother thought that was a gross factoid, try this one on her: The largest spider is the South American bird-eating spider. It has a leg-span of 10 inches.

## Come Back Contact!

Dear 3-2-1 CONTACT,

Why did you go off the air? I really like your show!

Aaron Munter  
Beaverton, Oregon

Dear Aaron,  
We have some good news and

some bad news. The good news is that reruns of our show can be seen in many parts of the country. The bad news? You don't live in one of those parts.

But hang on! There's great news ahead. Brand new episodes of 3-2-1 CONTACT will be airing soon. Keep a lookout for them. They're coming this fall.

## T-shirt Time

Dear 3-2-1 CONTACT,

I like all your things, but I want a T-shirt. Tell me how much it costs.

Felipe Garcia Moreno  
Mexico

Dear Felipe,

Lots of kids write asking us to send them a T-shirt. But there aren't enough to go around. So there are only three ways to get the shirt off our backs.

The first way is to visit a science museum and write a story about it. If we print your story, you get a T-shirt. Another way is to send us a story, from a newspaper or magazine, that you think belongs in the Contact Report. Last, but not least, is to win a 3-2-1 Contest.

Check out this month's contest on page 34. Good luck!

## We Want Mail!

Dear Readers,

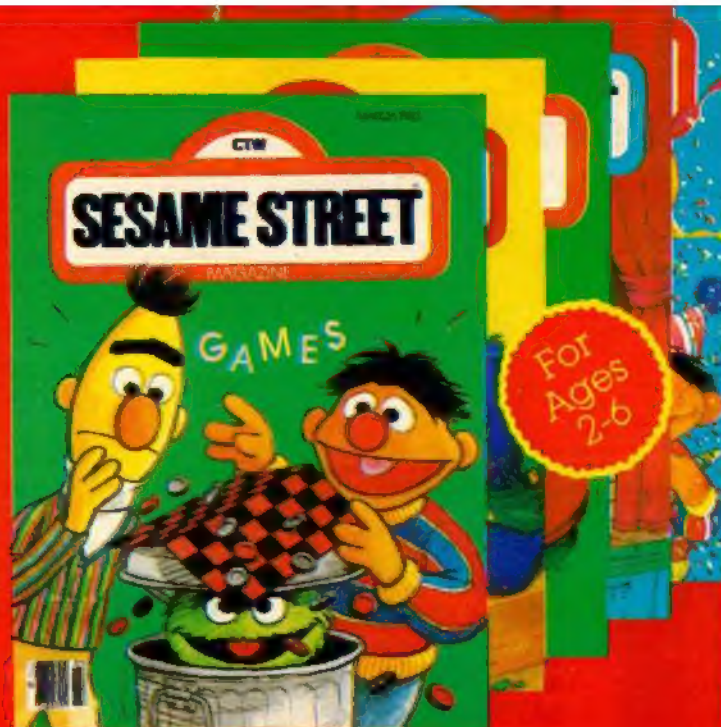
We really love hearing from you. The questions, ideas and complaints we get help us make CONTACT a better magazine. So why not drop us a line? We can't answer every letter, but we do read them all. Send your mail to:

3-2-1 CONTACT: Letters  
P.O. Box 599  
Ridgefield, NJ 07657









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## Earthfacts: Rain Forests

by Renée Skelton

Each month CONTACT will bring you another *Earth Works*. Save these pages in a notebook. Soon you will have your own guide to the wonders of the planet earth.

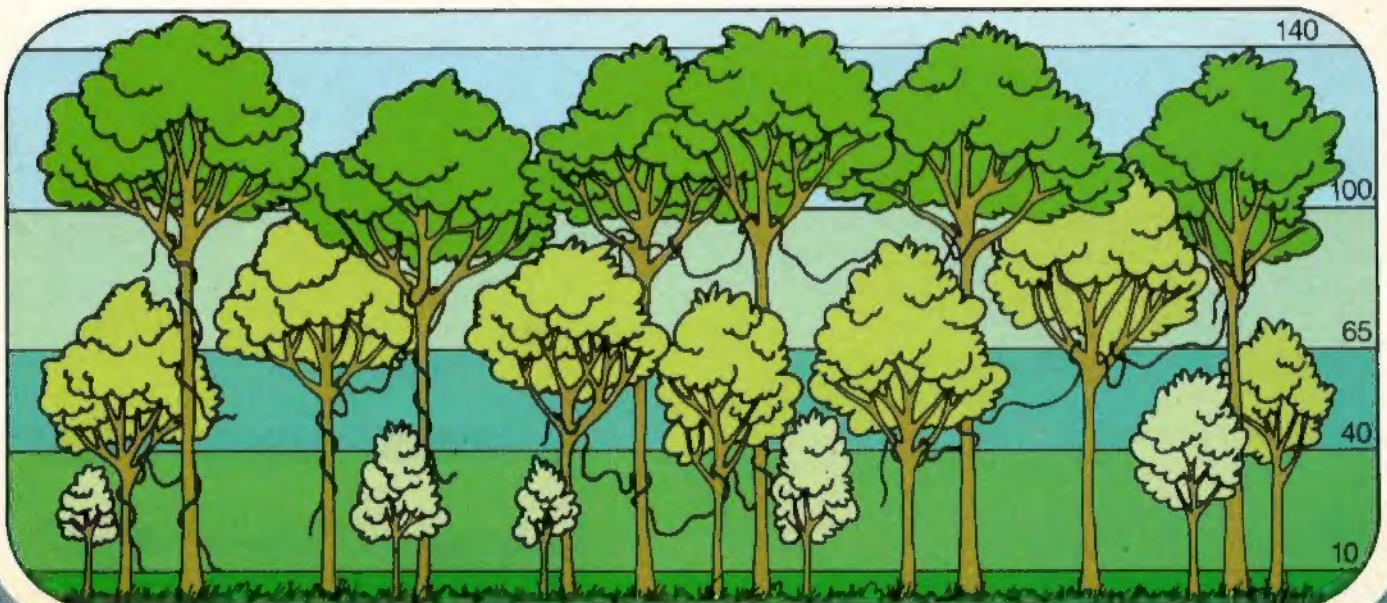
# EarthWorks

- Tropical rain forests are only found in really hot, wet places near the equator.
- Rain forests get their name because they're so wet. It rains almost every day. It's so hot and humid that if you walked through a tropical rain forest, your clothes would get soaked and stick to your body—even if it wasn't raining!
- At least one third of the plants and animals on earth live only in the tropical rain forest. New ones are discovered all the time. Some are very unusual—like frogs smaller than a quarter, giant 600-pound turtles, insect-eating plants and moths with wings one foot wide!
- Walking through the rain forest, you would see tall trees, some higher than a 10-story building. You wouldn't see the sun, though. Way up over your head, the leafy branches of these trees grow together. This forms the *canopy*. The canopy is like a roof of leaves over the forest.
- The canopy completely shades the forest floor. That's why plants and animals live in the tree-tops. There they can get sunlight and food. Monkeys swing from vine to vine. Big cats, like jaguars, rest on tree limbs. You'd find mice, frogs and even earthworms in the branches. Some animals spend their whole lives in the


trees and never go down to the ground.

- The world's largest tropical rain forest is around the Amazon River in Brazil. It is about as big as the whole United States. Other big tropical rain forests are in Africa and Asia.
- Few people live in the tropical rain forest. There are no cities. No roads go through most of them. Many parts of the rain forest are still wilderness that no person has ever explored.
- There are cool or temperate rain forests in places farther from the equator. In the United States there are four in northwestern Washington.
- Rain forests cover one tenth of the land on earth. But they are disappearing quickly. Trees are being cut for wood and to make room for farms. Since you started reading this page, at least 50 more acres of rain forest have been cut.

**Below:** Rain forest plants grow in layers or *canopies*. In the ground layer are ferns, herbs and tree sprouts. Next come shrubs and tiny trees. The shortest full-grown trees are in the third layer. In the fourth, trees up to 100 feet tall. The tallest trees poke their heads above the rest in the upper canopy—140 feet high.







**EarthWorks**

## Rain Forests

This lush, green wilderness is a tropical rain forest. Hidden behind these trees are thousands of unusual flowers and animals that can't be found anywhere else on earth.

For years, rain forests were dark, mysterious places that people avoided. Now, more people are visiting them. But not just to explore. They come to cut down trees. More than half the earth's rain forests are already gone. So some people are trying to stop the cutting of the rest before their special plants and animals are lost forever.

For more on rain forests, turn to page 39.

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